

Another Advancement In

STEM Education



Iowa State University informing decision-makers about research in Science–Technology–Engineering–Mathematics Education

‘Science of soft goods’ adds dimension to STEM education

From the buttons on your shirt to the soles of your shoes, your clothing is STEM education in action.

While the connection between fashion and science, technology, engineering, and mathematics (STEM) education may seem a stretch, future apparel designers, production managers, and merchandisers leave Iowa State University with a knowledge of the STEM skills necessary to succeed in their industry.

Ruth Glock, a professor in apparel, educational studies, and hospitality management teaches Technical Design Processes (TC 415), a class that challenges students to tap a variety of STEM skills to complete assignments.

“We’re working with soft goods instead of hard goods, and sometimes, people fail to see how STEM skills are necessary in our field,” Glock said. “As opposed to steel and atoms, we work with innumerable variables. The finish and dye of a fabric requires a knowledge of chemistry; taking a two-dimensional design to a three-dimension garment requires a lot of math skills; knowing what kinds of machines are needed for production relies on technical know-how; and students need to have a strong understanding of the software and technology used to make this all happen.”

In TC 415, students create patterns, garment specifications, and mass production details with a variety of complex software. Glock said students in her class get a big taste of just how technical the clothing industry is.



Apparel merchandising, design, and production seniors Jarod Meyer and Sara Peiper analyze garment specifications using high-tech design software.

“Some students take the class and are shocked to learn how much math, science, and technology they must know in order to succeed,” Glock said. “We are preparing technical designers just like other departments prepare scientists – we teach them to think using the scientific method and they are prepared to make decisions that best fulfill the questions and challenges they will find in the workplace.”

As each season brings new trends in fabric, finishes, styles, and consumer demands, Glock said students need to enter the workforce with an arsenal of STEM skills, knowledge of global culture, and the ability to scientifically analyze new developments.

“People may not think of us as ‘engineers,’ but from your jeans to your wallet, there are numerous STEM skills that went into developing, creating, testing, and producing that product. Textiles and clothing is truly the science of soft goods.”

For more information:

Check out other College of Human Sciences STEM education stories at www.hs.iastate.edu/news/stem.